

## **DETAILED ACTION**

### ***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Information Disclosure Statement***

2. The information disclosure statement (IDS) submitted on March 8, 2007 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

### ***Drawings***

3. The drawings submitted have been reviewed and determined to facilitate understanding of the invention. The drawings are accepted as submitted.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

Art Unit: 2874

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 6,685,307 to Ma et al.

7. Regarding Claim 1, Ma describes a method for preparing a polymer waveguide composed of an undercladding (200), a core (501), and an upper cladding (600) layers, including forming the under cladding coating layer on a substrate (100; see Figure 2), placing above the undercladding layer a mold (300) have the shape formed by assembling at least two waveguide pattern units (top and bottom of the mold) and two band parts (308a, 308b) such that the channels of the units are interconnected and open to the two band parts, in such a way that the recess of the mold and the under cladding layer face each other to form a void (see Figure 3), injecting a curable polymer resin (see Col 4 Lns 5-10) through one end of the two band parts to fill the void with resin (see Figure 4) and curing the resin to form the core layer (see Col 4 Lns 5-10), and removing the mold from the cladding layer (see Figure 5), and forming an upper cladding (600) coating layer on the core layer (see Figure 6). Ma does not describe the curable polymer resin as photocurable. However, curable polymer resins are well-known for form optical waveguides. It would have been obvious to one of ordinary skill in the art at the time of invention to use a photocurable polymer resin for the resin described by Ma, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416. The motivation for doing so would have been to allow for precise control of the curing process.

Art Unit: 2874

**8.** Regarding Claim 2, Ma does not describe evacuating the other band part during or after injection. However, evacuation of injection inlets is well known in the art of injection molding. At the time of invention, it would have been obvious to one of ordinary skill in the art to evacuate the ports of Ma. The motivation for doing so would have been to remove material from the port to ensure proper operation during future moldings.

**9.** Regarding Claim 3, Ma does not describe the waveguide pattern and band part having the same depth. Ma is silent as to the depth of the band part. It would have been obvious to one of ordinary skill in the art to create the band part of Ma having the same depth as the waveguide pattern, since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. In re Rose, 105 USPQ 237 (CCPA 1955).

**10.** Regarding Claim 4, Ma does not describe the mold as rubber or metal. It would have been obvious to one of ordinary skill in the art at the time of invention to use a rubber or metal mold for the mold described by Ma, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416. The motivation for doing so would have been to allow for repeated uses of the mold. Further, Ma does not describe the mold prepared by photolithography or LIGA. However, such methods are well known in the art for forming molds. At the time of invention, it would have been obvious to one of ordinary skill in the art to use such a process for forming the mold described by Ma. The motivation for doing so would have been to accurately control the formation of the mold.

Art Unit: 2874

**11.** Regarding Claim 5, Ma is silent as to the material of the substrate. However, silicon wafers, acrylic plates, and glass plates are well known materials for substrates. At would have been obvious to one of ordinary skill in the art at the time of invention to use such a material for the substrate described by Ma, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416. The motivation for doing so would have been to provide a strong carrier for the devices disposed on the substrate.

**12.** Regarding Claim 6, Ma describes no lip around the core (see Figures 1 and 5-7).

**13.** Regarding Claim 7, Ma does not describe the core having the claimed dimensions. It would have been obvious to one of ordinary skill in the art to create the core having such dimensions, since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. In re Rose, 105 USPQ 237 (CCPA 1955). The motivation for doing so would have been to allow for proper signal transmission.

**14.** Regarding Claim 8, Ma describes a mold (300) used in the above described process.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JERRY T. RAHLL whose telephone number is (571)272-2356. The examiner can normally be reached on M-F (9:00-5:00).

Art Unit: 2874

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (571) 272-2344. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Art Unit 2874